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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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HIGH DEATHRATES IN RURAL DISTRICTS.

Life is longer and health is better for those who live in the country and the smaller towns than for the city dwellers. The rural boy, at birth, has a life expectancy of 7¾ years more than his urban brother and the country girl may expect to live 6 years longer than the city girl. There are, nevertheless, a number of decidedly serious health problems for the rural population. In fact, for many important diseases the rural mortality exceeds the urban. The data for a long period of years show this clearly and are worthy of consideration.

Whooping cough is an interesting example. In direct contrast to what happens for the three other important epidemic diseases of childhood, measles, scarlet fever and diphtheria, the whooping cough deathrate is higher, year after year, in rural districts than in the cities. We have never seen a satisfactory explanation for this phenomenon. There must be a definite cause for this curious fact, and possibly the determination of that cause would have an important bearing on the treatment of this disease and on efforts to prevent and control it.

In the case of cancer, the epitheliomata, or skin cancers, constitute a very interesting exception to what happens with respect to malignant growths in other parts of the body; for these cancers, in direct contrast to all others, show a much higher rural than city deathrate.

In the case of tuberculosis the figures for disseminated or general tuberculosis show that this is an exception to what applies for tuberculous disease of the lungs and of other parts of the body; for general tuberculosis is the single type whose deathrate runs higher in the rural districts.

Deaths from smallpox are more numerous in the country and smaller towns. This is readily explained by the fact that vaccination

is more generally practiced in centers of population where city boards of health cooperate actively with state health departments in arousing the population to the dangers of smallpox and the protection which vaccination affords. The facts for influenza are of exceptional interest; for the mortality invariably runs higher in the country. This applies not only to the great pandemics of 1918-1919 and 1920 but to the so-called "normal years."

Among the diseases of the circulatory system, angina pectoris seems to be the one condition which generally (although not invariably) records a higher rural deathrate. Among the digestive complaints the relatively few deaths caused by intestinal parasites occur mostly in rural areas. After two years of age, diarrheal conditions are a more serious problem in the rural districts, in direct contrast to what happens in infancy when the urban deathrate approximates 50 per cent. in excess of the rural. Among the diseases of the genito-urinary system, bladder complaints alone register higher rural mortality. This is just the opposite to what happens for Bright's disease and other diseases of the kidneys. Among the diseases of the skin and cellular tissue, gangrene invariably has a higher rural deathrate.

Among diseases incidental to pregnancy and childbirth, the relatively high rural mortality from the accidents of labor is difficult indeed to explain. Under this head, vital statisticians classify deaths where there is operative interference, such as Caesarian operations and other instrumental deliveries. We would rather expect a higher *urban* deathrate because so many of these cases, among rural as well as urban women, are hospitalized in city institutions. It may be true that the higher mortality in rural districts is due to the fact that operative measures must be taken more often in the home where facilities are not as complete as in institutions.

Many more city dwellers than rural people commit suicide by taking poison, by inhaling gas, by firearms, cutting instruments and by jumping from high places, but the situation is reversed where hanging is the chosen method. Figures for eleven consecutive years without a single exception show this clearly.

Among accidental deaths, food poisonings, deaths in burning buildings, drownings, gun shot wounds, mining and quarry accidents, railroad accidents, deaths in landslides, injuries by animals, fatalities due to excessive cold and lightning are all more numerous in the country.

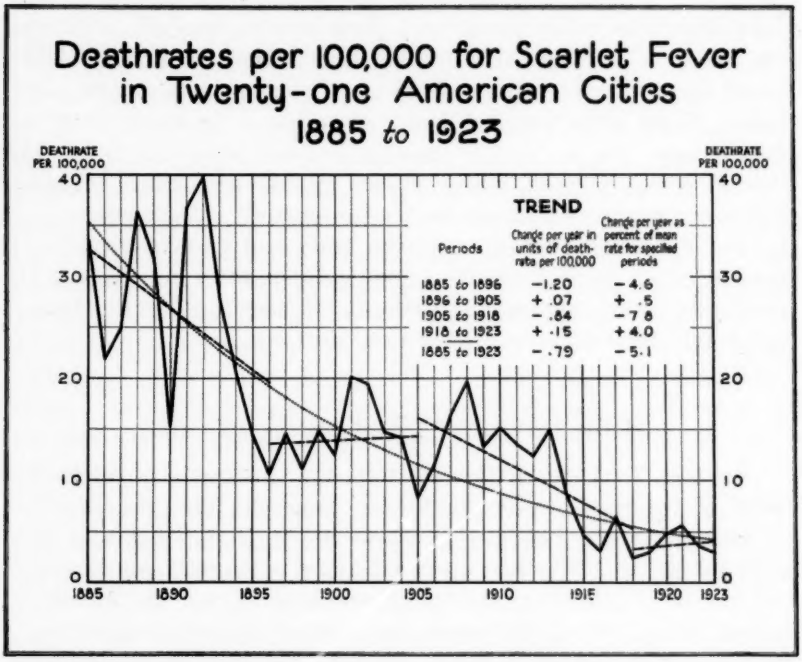
There are some diseases which show, year after year, relatively high rural mortality for perfectly obvious reasons. For example, there is typhoid fever, the control of which is now largely a matter of improving rural sanitation. In the case of malaria, practically all of the malaria breeding areas are in the rural districts. The rural deathrate for dysentery runs from two to three times that in the cities. This is due, in all probability, to the poor quality of the water supply in the country districts. Twice as many deaths occur from pellagra in the rural areas as in the cities. Chronic rheumatism causes more deaths in the country because mortality from this disease occurs largely among elderly people who have a higher representation in rural than in city populations. The same reason holds for apoplexy, softening of the brain and paralysis. General paresis, other mental diseases, and epilepsy show relatively high rural deathrates because the majority of hospitals for the insane and feeble-minded are located in rural districts.

FOUR DECADES OF SCARLET FEVER.

Between 1885 and 1923 there were four distinct changes in the trend of the scarlet fever deathrate. Following the establishment of quarantine and isolation measures in the earlier years of this period (1885 to 1896) there occurred a drop of nearly 5 per cent. per year in the scarlet fever mortality record of twenty-one American cities. From 1896 to 1905 no marked upward or downward tendency in the deathrate was observed. Perhaps this stationary condition resulted from the fact that no new and important control measures for scarlet fever were made available to the public health movement during this second period. After 1905, school hygiene and milk control became effective, and an average decline of 7.8 per cent. per year was recorded up to 1918. Then another halting tendency set in. The slight rise in the deathrate between 1918 and 1923 may indicate that at the present time public health procedures are securing as low a deathrate as may be expected with the facilities at hand. When the newly proposed methods, based upon the work of Drs. DICK, PARK, ZINGHER, BLAKE and DOCHEZ are introduced on a countrywide basis, another period of downward trend may be expected to set in.

It should encourage the public health movement to know, however, that rates as high as 40 per 100,000 four decades ago have been reduced to figures of 3 or 4 per 100,000 in recent years. The

recent experience will serve as a bench-mark for measuring the progress of the procedures which are now being considered in a number of cities included in the present survey. In the following chart, we show the record for twenty-one American cities between 1885 and 1923.



Of course, not all of the credit for the declining deathrate can be given to public health measures which aim to break the channels of communication between the sick and the well. Over these four decades there has been an influx into these cities of large numbers of new race stocks, bringing with them a greater or lesser immunity against the scarlet fever streptococcus and its toxins; housing conditions have improved; the general levels of wellbeing and of intelligence are higher and adequate treatment and early diagnosis have become available to a greater proportion of the population in the more recent decades of this period. It is also possible that the scarlet fever streptococcus and its toxins have undergone changes in capacity to produce disease and death.

It may be of interest to compare the trends of diphtheria and scarlet fever mortality during four decades in this group of cities. Certain calculations are shown in the table on the next page.

Percentage Decline or Increase per Year of Deathrates for Diphtheria and Scarlet Fever, 1885 to 1923.

Period	Diphtheria	Scarlet Fever
1885 to 1894	— 2.8	—4.6*
1894 to 1905	—10.4	+ .5†
1905 to 1918	— 2.8	—7.8
1918 to 1923	—10.3	+4.0

*1885 to 1896. †1896 to 1905.

The first period represents roughly the years when municipal health administration began to improve its methods of case reporting, isolation and hospitalization. During this period, the scarlet fever deathrate fell relatively twice as fast as that for diphtheria. Following the widespread use of antitoxin, the diphtheria deathrate declined more than 10 per cent. per year, whereas for scarlet fever the rate during this second period was practically stationary. Beginning with 1905 the rate of fall for diphtheria slackened and that for scarlet fever increased. Since 1918, the diphtheria deathrate again began to decline rapidly and the rate for scarlet fever increased somewhat. It is, of course, impossible to say why scarlet fever mortality should have shown a greater relative decline than diphtheria in twenty-four of the thirty-nine years under review. The same general control measures were applied for both diseases; for diphtheria there was available the adjunct of antitoxin treatment, and for this reason a more rapid decline in mortality for diphtheria might be expected. But the different nature of the two diseases must be taken into account in considering these changing rates of decline, and in this respect our knowledge is most incomplete.

Facts on measles and whooping cough will be presented in later issues of this Bulletin.

DEATHRATES BY SEASON OF THE YEAR.

The chart on page 6 presents, graphically, over a period of ten years, the mortality among Metropolitan Industrial policyholders at the four seasons of the year.

The outstanding items shown by the chart are:

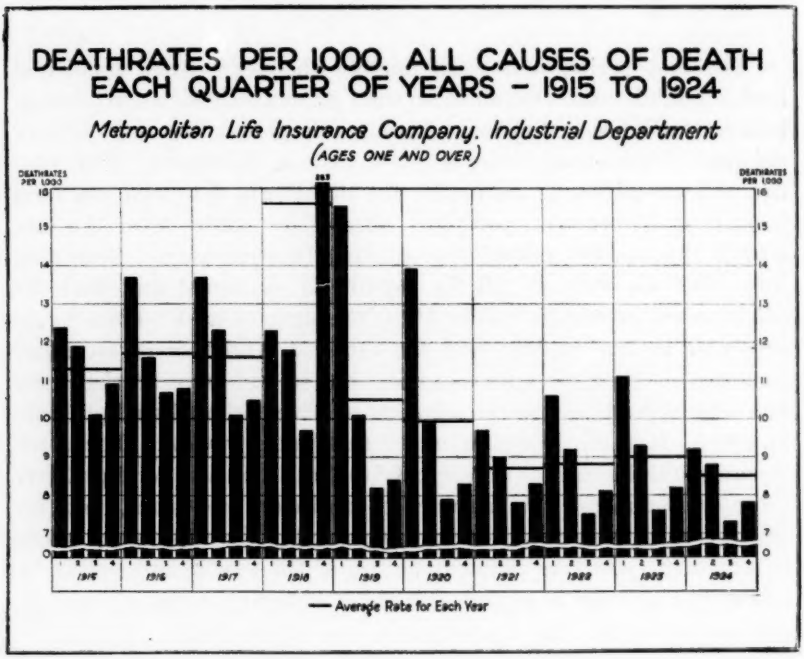
1. The last five years, at every season, show a pronounced improvement over the first five. The summer season enjoyed the greatest improvement.

2. The year 1924 registered the lowest rate on record for every season.

3. The death toll registered maxima in the fall of 1918, the winter of 1919 and the winter of 1920. The influenza pandemics of these years were responsible for these high deathrates.

4. The summer season registered the minimum deathrate every year.

5. The winter season registered the maximum deathrate every year with the exception of 1918.



MORE THAN SIXTY-EIGHT MILLIONS PAID IN DEATH CLAIMS TO METROPOLITAN BENEFICIARIES DURING 1924.

The Metropolitan Life Insurance Company paid in death claims to beneficiaries under its policies more than sixty-eight millions of dollars during 1924. The amounts paid for the principal causes of death are shown in the table on page 8 of this BULLETIN.

For the first time in the history of the Company the amount disbursed for claim payments on account of heart disease exceeded that for any other disease or condition. Approximately $9,000,000,

nearly one-seventh of the total claim payments, was disbursed for heart disease. The three principal cardiovascular-renal impairments (heart disease, cerebral hemorrhage and chronic nephritis) were responsible for claim payments of a little more than eighteen millions of dollars or 27.1 per cent. of the total amount paid. There is, today, no more promising field for public health work than in these "degenerative diseases." Many of these deaths could have been prevented; many more could have been postponed. Physicians and health workers are coming to recognize more and more the preventability of heart disease. Many serious cases of heart impairment could undoubtedly be averted by controlling the acute fevers of childhood, the chronic focal infections and especially the venereal infections. The teaching of the importance of correct diet, of proper exercise and of other well established elements in personal hygiene, will all help toward that end.

Tuberculosis was a very close second to heart disease in the amount paid to beneficiaries in death claims. Practically one-eighth of the total sum (12.3 per cent.) was disbursed. This may be compared with 12.8 per cent. in 1923, 13.1 per cent. in 1922, and 14.3 per cent. in both 1921 and 1920.

Influenza and pneumonia combined were responsible for almost one-tenth (9.5 per cent.) of the total claim payments. This is considerably less than for the former year, the decline being due, almost altogether, to the fact that there was no general prevalence of influenza during 1924. The drop in influenza was accompanied by a small decline in the per cent. of total disbursements on account of pneumonia.

Cancer was next in importance among the diseases. Although the deathrate declined slightly, the ratio of claim payments increased from 8.8 to 9.4 per cent. Cancer each year is becoming a more important item in the budget of the life insurance companies.

Nearly 2 per cent. of the total amount disbursed was on account of conditions arising from the maternal state.

The table on page 8 shows, also, what an important item deaths from violence constitute in the budget of life insurance companies. One-eighth of the total amount disbursed was paid out on account of violent deaths and one-eleventh of the total on account of fatal accidents. As in all recent years, automobile accidents were more important than any other type, not only in the matter of the deathrate, but in that of money payments. Automobile casualties accounted in 1924 for a little less than two 2 cent. of the total deaths and

for a trifle less than 2 per cent. (over one and a quarter-million dollars) of the total claim payments.

Amounts Disbursed on Account of Deaths from Specified Diseases and Conditions—Entire Experience of Metropolitan Life Insurance Company, Premium-paying Business, 1924.

Disease or Condition	Amount*	Per Cent. of Total	
		1924	1923
All Causes of Death	$66,357,128	100.0	100.0
Typhoid fever	461,947	.7	.7
Influenza and pneumonia	6,298,266	9.5	11.5
Influenza	1,158,700	1.7	3.4
Pneumonia—all forms	5,139,566	7.7	8.1
Tuberculosis—all forms	8,151,637	12.3	12.8
Tuberculosis of respiratory system	7,547,792	11.4	12.0
Cancer—all forms	6,245,088	9.4	8.8
Cerebral hemorrhage—apoplexy	4,402,778	6.6	6.8
Diseases of the heart	8,988,877	13.5	12.7
Chronic nephritis	4,663,950	7.0	7.0
Puerperal state	1,097,779	1.7	1.7
Total external causes	8,165,775	12.3	11.8
Suicides	1,396,959	2.1	2.1
Homicides	772,580	1.2	1.2
Accidents	5,994,776	9.0	8.4
Accidental drowning	593,510	.9	.9
Traumatism by fall	733,504	1.1	.9
Railroad accidents	603,547	.9	1.0
Automobile accidents	1,260,056	1.9	1.9
Other accidents	2,804,159	4.2	3.8
All other causes of death	17,881,031	26.9	26.2

*Total death claim disbursements, $68,294,687.25. Above tabulation does not include death claims on "Paid-up" or automatic term extension business.

HEALTH RECORD FOR JANUARY, 1925.

The year 1925, from the standpoint of public health, has begun very auspiciously among the industrial populations of the United States and Canada. This is indicated by the January deathrate of 9.5 per 1,000 among the more than sixteen million Industrial policyholders of the Metropolitan Life Insurance Company. The above figure is the lowest ever recorded in January for this large cross-section of the population. For some reason, which cannot be explained at this time, the comparison among the general population of the large cities of the United States, as reported by the Bureau of the Census, is not so favorable.

The table on page 11 shows quite general improvement, also, for the principal causes of death, as compared with January of last year. Considerable declines were recorded for all of the principal epidemic diseases of childhood. The measles deathrate is about one-fourth that of a year ago; the diphtheria figure declined 23 per cent. The pneumonia deathrate shows a slight decline despite the inclusion of a larger number of infant lives exposed to risk, among whom pneumonia mortality is higher than at any other age. Fewer deaths were also recorded from cancer, cerebral hemorrhage, Bright's disease, puerperal conditions, accidents, and automobile fatalities.

The outstanding feature of the January health record, however, is another remarkable reduction in the tuberculosis deathrate, which was 96.1 per 100,000, as compared with 110.0 a year ago, making a drop of 13 per cent.

The rate for automobile fatalities declined from 13.2 per 100,000 in January, 1924, to 11.0. These figures, however, may have little significance. Weather conditions early in 1925 were by no means so favorable for motor vehicle operation as they were a year ago. It may well be that the recorded decline was due altogether to the smaller number of chances for automobile accidents.

Influenza, unquestionably, was more prevalent than during the first month of 1924. There is no evidence, however, of a general outbreak of the disease in virulent form.

The diabetes deathrate was also in excess of that for January, 1924. Increases for this disease have now been recorded for five of the last seven months. This followed six successive months of 1924 in which the rate was lower than in 1923. It is entirely too early as yet to determine what these latest data for diabetes indicate as to effect of the use of insulin. The course of the mortality from diabetes, during the succeeding months will be watched with much interest, as this may serve to indicate whether there is to be any significant and *permanent* decline in the deathrate for this disease.

The general deathrate for the large cities of the United States during January was 14.4 per 1,000 as compared with 13.5 for January, 1924, and with 13.2 for December, 1924. Influenza, malaria, poliomyelitis and smallpox were more prevalent than during January a year ago, while declines were recorded for diphtheria, measles, scarlet fever and whooping cough. Comparison with December shows more cases of measles, scarlet fever, smallpox, and whooping cough, with declines in diphtheria, malaria, poliomyelitis, and typhoid fever.

Increased sickness from influenza was reported in most states.

In Alabama, for example, case reports rose from 371 during the first three weeks of December to 653 for the corresponding weeks of January. In Arkansas, the corresponding figures were 201 and 515, and in Texas 837 and 1,864.

There were several scarlet fever outbreaks in January, the most serious of which were at Havre de Grace, Md.; Owensboro, Ky.; Bellefontaine, Ohio; Milden, Saskatchewan and Hamilton, Ontario.

Increasing smallpox cases are reported, more especially, in Alabama, Arizona, Indiana and Iowa. The disease became epidemic in Continental, Ohio; in Tipton County, Tenn., it became necessary to close several schools; in parts of Letcher County, Ky., schools were closed and business considerably hampered by the presence of smallpox. Since the first of the year twenty cases with six deaths have been reported in Detroit.

Among the outstanding public health activities during January may be mentioned the following. North Dakota was admitted to the United States Birth and Death Registration Areas. The New York City Health Commissioner inaugurated a special study of acute anterior poliomyelitis, encephalitis lethargica and meningococcus meningitis. Children of pre-school age are being given free physical examinations in twenty of the fifty-eight counties of California. State authorization whereby any Iowa city may pass an ordinance compelling vaccination for smallpox, will be sought from the present legislature by the State Board of Health. The Detroit Health Department specially urged those who have not been successfully vaccinated within the past five years to obtain this protection as soon as possible.

The table on page 11 displays the mortality among the Industrial policyholders for January, 1925; for December and January, 1924, and for the year 1924.

METROPOLITAN LIFE INSURANCE COMPANY.

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department. (Annual Basis.)

MONTHS OF DECEMBER, 1924; JANUARY, 1925, AND OF JANUARY, 1924.

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	Jan., 1925	Dec., 1924	Jan., 1924	Year 1924†
TOTAL—ALL CAUSES	952.6	954.0	998.1	907.5
Typhoid fever	4.4	4.2	3.0	4.4
Measles	2.3	1.6	8.8	7.2
Scarlet fever	5.1	3.8	7.0	4.4
Whooping cough	5.1	5.3	5.9	7.4
Diphtheria	15.8	14.3	20.4	13.2
Influenza	25.1	19.6	16.6	16.0
Tuberculosis (all forms)	96.1	97.5	110.0	104.5
Tuberculosis of resp'y system	84.8	86.2	100.2	92.6
Cancer	70.7	71.2	74.3	70.4
Diabetes mellitus	19.1	16.5	17.6	14.9
Cerebral hemorrhage	58.5	64.4	67.7	60.2
Organic diseases of heart	143.2	142.9	139.7	123.7
Pneumonia (all forms)	125.4	105.5	126.0	88.8
Other respiratory diseases	16.8	18.4	16.1	13.9
Diarrhea and enteritis	17.0	21.1	18.3	32.2
Bright's disease (chronic nephritis)	70.3	71.1	73.3	65.5
Puerperal state	14.4	15.6	17.2	16.8
Suicides	5.7	7.6	5.6	7.2
Homicides	6.6	7.8	5.7	7.1
Other external causes (excluding suicides and homicides)	59.2	64.3	64.0	62.7
Traumatism by automobile	11.0	17.5	13.2	15.7
All other causes	192.0	201.2	200.8	187.0

*All figures include infants insured under one year of age.

†Based on provisional estimate of lives exposed to risk in 1924.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

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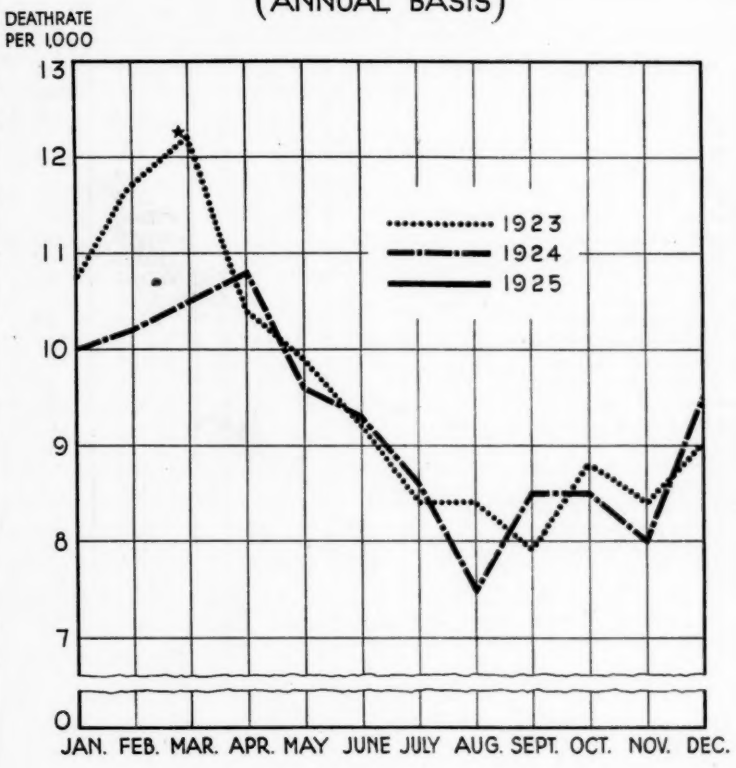
DEATHRATE PER 1000 *in* SPECIFIED MONTHS *of* 1923, 1924, 1925

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT

(ANNUAL BASIS)



	1923	1924	1925		1923	1924	1925
JAN.	10.7	10.0	9.5	JULY	8.4	8.6	
FEB.	11.7	10.2		AUG.	8.4	7.5	
MAR.	12.2	10.5		SEPT.	7.9	8.5	
APR.	10.4	10.8		OCT.	8.8	8.5	
MAY	9.9	9.6		NOV.	8.4	8.0	
JUNE	9.2	9.3		DEC.	9.0	9.5	

★ *Beginning with March, 1923, figures include mortality of infants under one year of age.*

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